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APPLICATION NUMBER 07/044,830	FILING DATE 03/19/98 UEDA	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO. A 980400
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QM61/0622

EXAMINER

ATKINSON, D

ART UNIT	PAPER NUMBER
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3743

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DATE MAILED: 06/22/98

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

OFFICE ACTION SUMMARY

☒ Responsive to communication(s) filed on 3/19/98

☐ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-12 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-12 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of Reference Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

SEE OFFICE ACTION ON THE FOLLOWING PAGES

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Specification

The disclosure is objected to because of the following informality: On page 3, line 14 "hear" should be -- heat --. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 5 are rejected under 35 U.S.C. § 102(b) as being anticipated by the IBM Technical Disclosure Bulletin reference.

The IBM Technical Disclosure Bulletin reference, in Figures 1-3 and on pages 110-113, discloses a U-shaped heat pipe type cooler comprised of a heat receiver /straps, a heat radiator/fins and a U-shaped heat pipe thermally connected at its middle portion to the heat receiver/straps. High-power modules are attached via screws to the heat receiver/straps. The remaining limitations are considered to be clearly met.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the

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art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

Claims 2 and 6-7 are rejected under 35 U.S.C. § 103 as being unpatentable over the IBM Technical Disclosure Bulletin reference in view of August. The IBM Technical Disclosure Bulletin reference discloses all the claimed features of the invention with the exception of the heat radiator comprised of a plurality of horizontally oriented, vertically extending heat radiating plates, where the heat pipe passes through the plates and a connector comprising a hook portion and a hook engaging portion.

The patent of August in Figures 1 and 3 discloses a heat radiator comprised of a plurality of horizontally oriented, vertically extending heat radiating plates (40), where a heat pipe (18) passes through the heat radiating plates (40) and a connector comprising a hook portion (25) and a hook engaging portion (26) for the purpose of efficiently removing heat from a plurality of transistors (11) and compactly connecting together a plurality of heat pipe type cooling devices.

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It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in the IBM Technical Disclosure Bulletin reference a plurality of horizontally oriented, vertically extending heat radiating plates, where a heat pipe passes through the heat radiating plates and a connector comprising a hook portion and a hook engaging portion for the purpose of efficiently removing heat from a plurality of transistors and compactly connecting together a plurality of heat pipe type cooling devices as disclosed in August.

Claim 3 is rejected under 35 U.S.C. § 103 as being unpatentable over the IBM Technical Disclosure Bulletin reference in view of Ogawa. The IBM Technical Disclosure Bulletin reference discloses all the claimed features of the invention with the exception of the heat radiator having corrugations.

The document of Ogawa in Figures 1 and 5 discloses a heat radiator/fins (3) having corrugations (2) for the purpose of increasing the heat transfer area of the heat radiator/fins (3). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in the IBM Technical Disclosure Bulletin reference a heat radiator/fins having corrugations for the purpose of increasing the heat transfer area of the heat radiator/fins as disclosed in Ogawa.

Claim 4 is rejected under 35 U.S.C. § 103 as being unpatentable over the IBM Technical Disclosure Bulletin reference in view of Goth et al. The IBM Technical Disclosure Bulletin reference discloses all the claimed features of the invention with the exception of the heat receiver having a ridged portion for heat radiation.

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The patent of Goth et al. in Figures 1- 4 discloses a heat receiver (10) having a ridged portion (13,14) for the purpose of increasing the heat transfer area of the heat receiver (10) and removing heat from chip devices via radiation and convection heat transfer. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in the IBM Technical Disclosure Bulletin reference a heat receiver having a ridged portion for the purpose of increasing the heat transfer area of the heat receiver and removing heat from chip devices via radiation and convection heat transfer as disclosed in Goth et al.

Claim 8 is rejected under 35 U.S.C. § 103 as being unpatentable over the IBM Technical Disclosure Bulletin reference in view of Scharli. The IBM Technical Disclosure Bulletin reference discloses all the claimed features of the invention with the exception of a plurality of heat pipes connected to the heat receiver.

The patent of Scharli in Figures 3-5 discloses a plurality of parallel U-shaped heat pipes (5,10) connected to a heat receiver (1) for the purpose of efficiently and compactly removing heat from semiconductor elements (2). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in the IBM Technical Disclosure Bulletin reference a plurality of parallel U-shaped heat pipes connected to a heat receiver for the purpose of efficiently and compactly removing heat from semiconductor elements as disclosed in Scharli.

Claims 9 and 11-12 are rejected under 35 U.S.C. § 103 as being unpatentable over the IBM Technical Disclosure Bulletin reference in view of Scharli as applied to claim 8 above, and further in view of Kunsagi et al. The IBM Technical Disclosure Bulletin reference as modified,

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discloses all the claimed features of the invention with the exception of a plurality of horizontally oriented, vertically extending heat radiating plates, where the heat pipe passes through the plates; a ventilation duct surrounding the heat radiator and having an inlet and an outlet and a fan interposed between preselected heat pipes.

The patent of Kunsagi et al. in Figure 3 discloses a heat radiator comprised of a plurality of horizontally oriented, vertically extending heat radiating plates (51), where heat pipes (50) pass through the heat radiating plates (51); a ventilation duct (30) surrounding the heat radiator and having an inlet (44) and an outlet (56) and a fan (52) interposed between preselected heat pipes (50) for the purpose of removing heat from the heat pipes (50). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in the IBM Technical Disclosure Bulletin reference as modified, a heat radiator comprised of a plurality of horizontally oriented, vertically extending heat radiating plates, where heat pipes pass through the heat radiating plates; a ventilation duct surrounding the heat radiator and having an inlet and an outlet and a fan interposed between preselected heat pipes for the purpose of removing heat from the heat pipes as disclosed in Kunsagi et al.

Claims 10 is rejected under 35 U.S.C. § 103 as being unpatentable over the IBM Technical Disclosure Bulletin reference in view of Scharli as applied to claim 8 above, and further in view of August. The IBM Technical Disclosure Bulletin reference as modified, discloses all the claimed features of the invention with the exception of the heat pipes disposed in a horizontal row.

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The patent of August in Figures 1 and 3 discloses a plurality of heat pipes (17,18) disposed in a row for the purpose of efficiently removing heat from a plurality of transistors (11) and compactly connecting together a plurality of heat pipe type cooling devices. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in the IBM Technical Disclosure Bulletin reference as modified, a plurality of heat pipes disposed in a row for the purpose of efficiently removing heat from a plurality of transistors and compactly connecting together a plurality of heat pipe type cooling devices as disclosed in August. The row of heat pipes being oriented horizontal is considered to be an obvious design expedient dependent upon a desired spacial orientation which does not solve any stated problem or produce any new and/or unexpected result. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ the row of heat pipes in the IBM Technical Disclosure Bulletin reference as modified, in a horizontal orientation for the purpose of using the cooling device in a desired fashion.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Atkinson whose telephone number is (703) 308-2603 (FAX (703) 308-7765).

C.A.

C.A.

June 17, 1998

**CHRISTOPHER ATKINSON
PATENT EXAMINER**